

ASOS MODIFICATION NOTE 42 (for Electronics Technicians)

Engineering Division

W/OSO321:BGM

SUBJECT : Class I Acquisition Control Unit (ACU) Uninterruptible Power Supply (UPS) installation.

PURPOSE : Upgrade Class I ACU, with DELTEC UPS

EQUIPMENT AFFECTED: ASOS, ACU

PARTS REQUIRED : Appendix B

MOD PROCUREMENT : Parts will be issued from NLSC. Only sites listed in Appendix C will be upgraded and the NWSH will issue all kits.

SPECIAL TOOLS REQUIRED : None

TIME REQUIRED : 2.5 hours

EFFECT ON OTHER INSTRUCTIONS : None

AUTHORIZATION : This modification is authorized by Engineering Change Proposal (ECP) S00824.

GENERAL

The Field Modification Kit (FMK) adds a DELTEC UPS and battery box to a Class I ASOS system. These Class I ASOS systems are to be identified using the appropriate label provided as part of the Field Modification Kit.

To upgrade a Class I ASOS system with a DELTEC UPS, an approved Request for Change (RC) will be required. The ACU firmware must be version 2.1 or greater before completing this modification. If the ACU firmware is 2.0 or earlier, comply with Modification Note 33, Engineering Handbook (EHB) No. 11, Section 3.6, instructions for upgrading the firmware.

PROCEDURE

BEFORE INSTALLATION

1. Call the AOMC at 1-800-242-8194 and provide notification on which ASOS you will be installing the DELTEC UPS, Modification Note 42.
2. Acquire approval from the responsible MIC/OIC/Observer before starting installation. You may install on any day of the month if the restrictions in steps 3 and 4 are satisfied.
3. **Commissioned Sites Only:** Do not start installation during inclement weather, precipitation, instrument flight rule (IFR) conditions, or if any of those conditions are expected within 3 hours. The responsible MIC/OIC/Observer will define these meteorological conditions.
4. Do not start the installation at a time that will conflict with scheduled synoptic observations at 00, 03, 06, 09, 12, 15, 18, and 21Z. Although 1.5 hours should be sufficient, allow 2.5 hours to complete installation and restart ASOS.
5. Immediately before beginning work at NWS staffed sites, the MIC/OIC/Observer will inform the Air Traffic Control Tower (ATCT) and any other critical users that the ASOS will be shut off for the DELTEC UPS installation. At an unstaffed site, the Electronics Technician (ET) will inform the ATCT using Controller Video Displays (CVD) and Operator Interface Devices (OID) to log off and shut down the displays to avoid any problems.
6. Do not begin the installation process, until immediately after an hourly observation has been transmitted. At NWS-staffed sites, normal backup observing procedures will be implemented.
7. Disable all hardware and dial communication ports to AFOS, (REVUE-SITE-CONFIG-COMMS). Go into the AOMC page (REVUE-SITE-VERSN-AOMC); wait for the external communication and site physical lines to change from AUTO UPLOAD REQ to COMPLETE before going to the next step.
8. Make the appropriate SYSLOG entries (MAINT-ACT-FMK) for Mod Note 42.
 - a. Log on as **TECH**.
 - b. Key the **MAINT** screen.
 - c. Key the **ACT** page.
 - d. Key **START** - Stop here and preform Modification Note 42.
 - e. Upon completion of the Modification Note 42, log onto the system.

AFTER INSTALLATION OF DELTEC UPS

9. When the ASOS is restarted at non-staffed sites, call to inform the affected ATCT that the work is complete. (At staffed sites the MIC/OIC/Observer will call the ATCT).
10. If on-site NWS staff provides backup while the installation is underway, no special observation is needed when the wind system is restarted.
11. Inform the office staff that the ASOS is operational. If less than 25 minutes remain until the next hourly observation, augmentation of the ceiling may be required. It may be necessary to augment several elements or even the entire observation. The chart below indicates the time it takes after a startup for the ASOS to report each observation element automatically.

Times Needed for Elements to be Reported Automatically

Status Output	Minimum Time	Maximum Time
Precipitation Amount	1	*
Wind Direction	2	7
Wind Speed	2	7
Precipitation Type	2	*
Temperature	5	10
Dew Point	5	10
Visibility	10	15
Obstruction to Visibility	10	*
Ceiling	30	35

* Maximum time not applicable since phenomena may not be present. Minimum time applies if phenomena are present.

12. Verify that the ASOS transmitted an hourly observation. Call the AOMC at 1-800-242-8194 and tell the operator:
 - a. Your location;
 - b. That installation of the DELTEC UPS has been completed; and

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- c. That the ASOS is operational.
13. Enter in the SYSLOG that maintenance has been completed.
- a. Key the **MAINT** screen.
 - b. Key the **ACT** page.
 - c. Key **FMK** and enter the Field Modification Kit number as Mod 42.
On the second line of the screen verify that only Mod 42 is displayed. Complete by entering Y in the [Y/N] field if only Mod 42 is displayed; and
 - d. Check the SYSLOG and verify the FMK message. Enter a comment in the SYSLOG stating that DELTEC UPS has been installed.
14. At an expansion site with ATCT, the ET will contact the ATCT and supply information on the following:
- a. ASOS maintenance is completed.
 - b. ASOS is restored to service.
 - c. ATCT CVDs and OIDs need to be powered up, and Terminal Radar Control (TRACON) displays need to be turned on.

Reporting Modification

For sites listed in Appendix C, completion target date of this modification is 30 days after receipt of the parts. Report completed modification on a Weather Service Form A-26 Maintenance Record, following instructions in EHB-4, Part 2, Appendix F. Use reporting code **AACU**. Reference Appendix D for a completed sample of WS Form A-26.

John McNulty
Chief, Engineering Division

Appendix A
Appendix B
Appendix C
Appendix D

W/OSO321:WWeir:713-1835x129
Win6.1:K:\OSO32\OSO321\Asos Temps\Asosmd42.h11:9/29/97
Spell Check:9/29/97

INSTRUCTIONS

FIELD MODIFICATION KIT - DELTEC UPS INSTALLATION

NOTE:

One (1) RS232 SIO port is needed to install the UPS. Install an additional SIO board only if the system does not have one unused RS232 port. SIO #1 cannot be used for the UPS.

1. On the OID keyboard, press REVUE-SITE-CONFIG-COMMS. Are there any unused RS232 ports available? (Reminder - *SIO #1 cannot be used for the UPS*).
2. If there are no spare SIO ports available, the ET will need to install an additional SIO board. Contact Bob McCormick at 301-713-1835 X167 for an additional SIO card.
3. Remove facility power to ACU.

NOTE:

Perform Steps 4-7 only if an additional SIO board needs to be added to the system.

4. VME RACK 1A2: remove the blank panel from the first available SIO slot (1A2A9, 1A2A10, or 1A2A11).
5. Configure SIO board (62828-47014) as per the SIO, RS-232, Circuit Card Assembly table on page 2-177 of the Site Technical Manual.

Example: If SIO board is SIO #6 (1A2A10), set jumpers for a 62828-47014-50 board and mark board with appropriate dash number.

6. Install new SIO board in slot where the blank panel was removed.
7. If required, remove IACK Jumper from rear of VME backplane slot where the SIO board was installed in the previous step (6).
8. Remove and save blower cover from the bottom front of ACU.

CAUTION

Fan wiring is still connected to the terminal strip.

9. Remove and save the four (4) screws holding blower (B1) in place. Slide the blower out of cabinet as far as possible.

10. Remove and terminate the following wires from terminal block (1A7) located behind the power supply (1A5). These wires will no longer be used.

From: 1A7-18C GRAY wire marked A7-18C/A7-23A
 1A7-19C WHITE wire marked A7-19C/A7-22A
 1A7-22A WHITE wire marked A7-22A/A7-19C
 1A7-23A GRAY wire marked A7-23A/A7-18C

11. Install angle mounting brackets (62828-40180-3), , and (62828-1), , and (62828-
3), , with the appropriate hardware as shown in Figure 1.

(59) 40180-

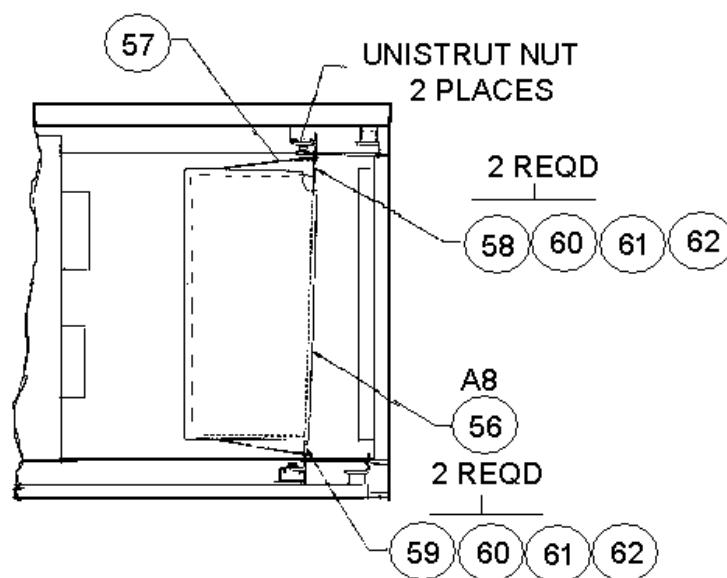


FIGURE 1. BATTERY BOX POSITION IN ACU

12. Place battery box P/N 62828-40262- (56) 20, , on the bottom of the ACU (behind the blower). Refer to Figure 1.
13. Hook strap P/N 62828-90250-1, (57) , around battery box. Refer to Figure 1.

CAUTION:
DO NOT TIGHTEN HARDWARE UNTIL AFTER TRAY IS INSTALLED.

14. Reinstall blower removed in step 9. Slide blower B1 Into cabinet. While holding blower, screw in the four (4) securing screws.
15. Reinstall blower cover removed in step 8.
16. Install chassis slides (62828-90052-3), (14) . Refer to figure 2.
17. Install slide mounting brackets (62828-90220-1), (12) , and (62828-90220-2), with appropriate hardware as shown (13) in Figure 2.

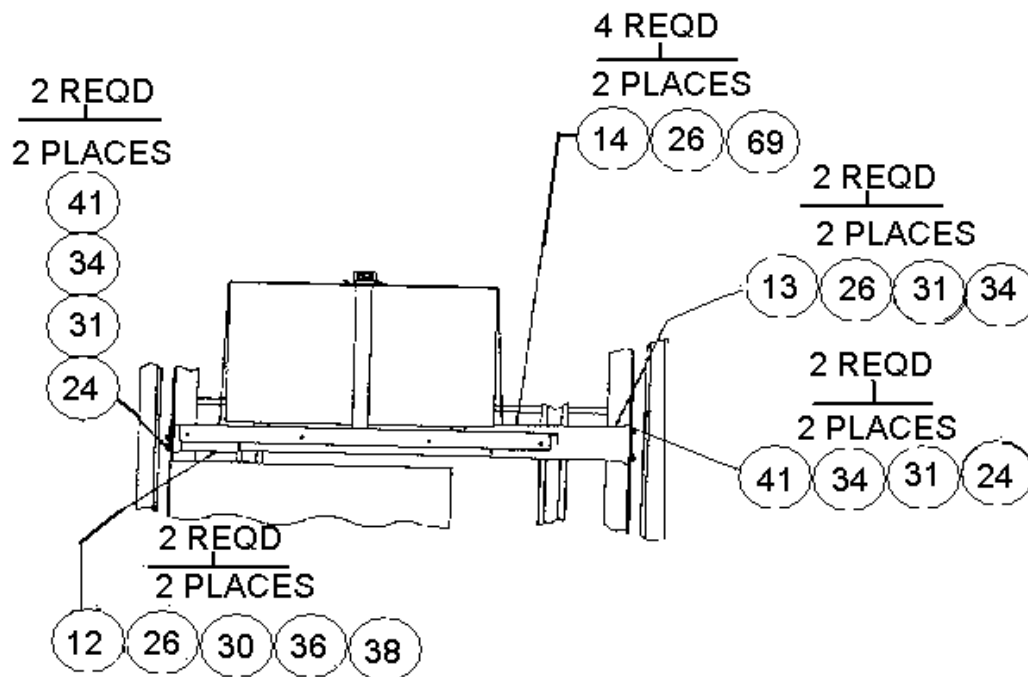


FIGURE 2. UPS SHELF MOUNTED ON SLIDES

18. Locate UPS shelf (62828-40135-20) and attach to slides as shown in figure 2 using appropriate hardware.
19. Slide tray in and out of ACU adjusting slides so that the tray slides without binding. Tighten hardware installed in step 13.
20. Place the UPS on the mounting shelf and fasten using straps (62828-90341-1) and (62828-90341-3).
21. In step 2, a spare SIO port was recorded or a new SIO board was added to the system. Tied in a bundle along the inside of the ACU are the spare SIO cables that are not being used. Find the cable marked with SIO port recorded in step 2, or if a new SIO board was added, find the cable labeled with Port 1 of that board. Example: If SIO #6 (1A2A10) was added, the cable will be marked W16P41 from SIO 6-1. Route this cable to the UPS shelf.
22. Install RS232 Adaptor cable (W78) (62828-42029-10). Insert the appropriate port and SIO board number listed below:

P1 mates with W16P----- (SIO-----from step 21)
P2 mates with UPS COMM PORT
23. Install AC power cable (W89) (62828-42047-10) as follows:

P13 plugs into UPS output receptacle
P97 mates with UPS power cable
24. Route cable along existing harness that goes to terminal block assembly (1A7) and connect as follows:

Gray	wire marked	A7-23A/P13-1	to	A7-23A1
White	wire marked	A7-22A/P13-2	to	A7-22A
Green	wire marked	A7-20B/P13-3	to	A7-20B
Gray	wire marked	A7-18C/P97-1	to	A7-18C
White	wire marked	A7-19C/P97-2	to	A7-19C
Green	wire marked	A7-20C/P97-3	to	A7-20C
25. Run cable attached to Battery box and connect to mating connector on rear of UPS.
26. Slide the UPS shelf in and secure it using the following hardware:
 - a. screw (MS51958-65)
 - b. flat washer (MS15795-808)
 - c. lock washer (AA55610-138)

NOTE:

DELTEC UPS could be configured in two ways. The UPS may be configured as either DELTEC or SOLA, but switch settings on UPS and Hardware Configuration page must match.

27. On rear panel of the DELTEC UPS, directly above the COMM PORT connector, the UPS SET UP switches (S1-S8) are located. Configure these switches as follows:

UPS CONFIGURED AS DELTEC		UPS CONFIGURED AS SOLA	
S1	OFF	S1	OFF
S2	OFF	S2	OFF
S3	OFF	S3	OFF
S4	OFF	S4	OFF
S5	OFF	S5	OFF
S6	OFF	S6	OFF
S7	OFF	S7	ON
S8	OFF	S8	OFF

28. Apply facility power to the ACU.
29. Turn the UPS power switch, located on rear panel, to the ON position. The UPS will perform its start up procedure and the system will warm start.
30. Sign on to the ASOS system as a Technician.

NOTE:

Perform steps 31 only if DELTEC configuration was selected in step 27. If SOLA configuration was selected in step 27, skip to step 32.

31. On the OID, press REVUE-SITE-CONFIG-DEFIN-CHANG and move cursor to ACU UPS. Press SEQN until DELTEC appears, then press EXIT.
32. On the OID, press REVUE-SITE-CONFIG-HDWE-CHANG and move cursor to ACU UPS. Press SEQN until 1 appears, then press EXIT.

NOTE:

Perform step 33 only if DELTEC configuration was selected in step 6. If system had a spare SIO port available, proceed to step 34.

33. On the OID, press REVUE-SITE-CONFIG-HDWE-CHANG and move cursor to ACU SIO. Press SEQN once, then press EXIT.

CAUTION:
**BE CAREFUL NOT TO CONFIGURE MORE SIO BOARDS THAN ARE
PHYSICALLY INSTALLED IN THE SYSTEM.**

34. On the OID, press REVUE-SITE-CONFIG-COMMS, move cursor to SIO board and port selected in step 2 and press CHANG.

A. Configure SIO ____ Port as follows if DELTEC was selected in step 27.

FUNCTION	UPS
STATUS	ENABLED
HANDSHAKE	NONE
BAUD RATE	1200
CONNECTION	HARDWIRE
PARITY SELECT	NONE
BITS/CHAR	8
STOP BITS	1

B. Configure SIO ____ Port as follows if SOLA was selected in step 27.

FUNCTION	UPS
STATUS	ENABLED
HANDSHAKE	NONE
BAUD RATE	9600
CONNECTION	HARDWIRE
PARITY SELECT	NONE
BITS/CHAR	8
STOP BITS	1

35. On the OID, press MAINT-SEL-PREV-SEL, the ACU UPS maintenance page will be displayed. After several minutes, all fields will display a "P" and input, output, and battery voltages.
36. After 15 minutes of operation, remove facility power from the ACU UPS at the main breaker panel. The ACU will switch to backup (UPS) power. After 5 minutes, restore power facility power to the ACU. Check the 12 hour and data pages for missing data. The only indication should be a SYSLOG message indicating that the ACU is on battery followed by ACU AC line returned. No other failures should occur. The maintenance page will have an AC fail count. This is not a system failure and will not cause a dollar sign (\$) in the ASOS observation.
37. Clear all of the maintenance fail counts that may have occurred during powering the ASOS system on and off.

38. Affix the identification label nameplate which has the unit's serial number. The nameplate is located on the inside of the ACUs front door. Refer to figure 3.

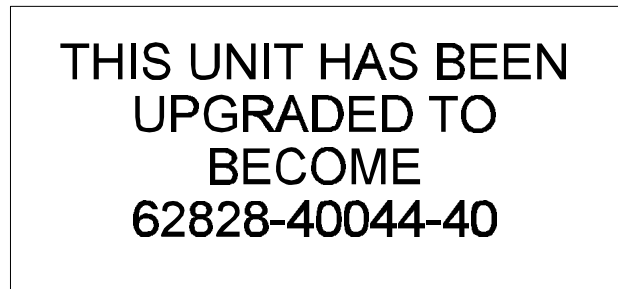


Figure 3. Re-IDENTIFICATION LABEL

39. Complete maintenance changes in Maintenance Log.
40. This completes Modification Note 42.
41. Return to page 3 and follow the "After Installation of DELTEC UPS" procedures.

Parts List

<u>PART NUMBER</u>	<u>QTY</u>	<u>NOMENCLATURE</u>	<u>FN on Figures</u>
62828-40135-20	1	Tray,UPS	001
62828-90341-3	1	Strap	002
62828-90341-1	1	Strap	003
MS25281-R4	1	Clamp	005
MS15795-807	1	Washer, Flat	006
AA55610-137	1	Washer, Lock	007
MS51957-46	1	Screw	008
62828-90220-1	2	Slide Mounting Bracket	012
62828-90220-2	2	Slide Mounting Bracket	013
62828-90052-3	2	Slide, Chassis	014
MS51958-65	8	Screw	024
MS51957-44	16	Screw	026
AA55610-137	8	Washer, Lock	030
AA55610-138	10	Washer, Lock	031
MS15795-808	10	Washer, Flat	034
MS35649-284	8	Nut	036
MS15795-807	8	Washer, Flat	038
62828-90221-1	4	Nut Bar	041
62828-40262-20	1	Battery Box	056
62828-90250-1	1	Strap	057
62828-40180-1	1	Angle, Mounting	058
62828-40180-3	1	Angle, Mounting	059
MS51957-82	4	Screw	060
MS35338-139	4	Washer, Lock	061
MS1579-810	4	Washer, Flat	062
M22473C AR		Sealing Compound	069
62828-42029-10	1	Cable, RS232 (W78)	077
62828-42047-10	1	Cable, AC Power (W89)	-----
FMK88-1 1		Label Re-Identification	-----
62828-47014	AR	RS232 SIO Board	-----
MS51958-64	2	Screw	025
62828-90288-1	2	Unistrut Nut	-----
Tubing or tape to secure unused wires			
Cable ties or lacing cord to secure wires			

Sites to Receive DELTEC UPS

SID	City	State
CLM	Port Angeles	Washington
FHR	Friday Harbour	Washington
RAC	Racine	Wisconsin

